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Cheng-Hung Ho

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24504

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10/27/2008

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EXAMINER

SCHMIDT, KARL L

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/811,115	<b>Applicant(s)</b> HO ET AL.	
	<b>Examiner</b> KARI L. SCHMIDT	<b>Art Unit</b> 2439	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Notice to Applicant***

This communication is in response to the amendment filed on 07/20/2008. Claims 1-20 remain pending. Claims 1, 6 and 11 have been amended. Further the examiner notes the 112, second paragraph rejection of claim 6 has been withdrawn.

### ***Response to Arguments***

Applicant's arguments filed 7/20/2008 have been fully considered but they are not persuasive.

The applicant argues that Zhu and Inomata do not teach or suggest: "dividing an original image into two image parts according to a compression technique, wherein one of the image parts is the base image data and the other image part is the auxiliary image data, and the base image data and the auxiliary image data respectively comprise a part of image contents comprising pixel values of the original image; and encrypting the auxiliary image data to an auxiliary image data cipher." The examiner disagrees.

The examiner notes the combination of Zhu in view of Inomata does indeed disclose dividing an original image into two image parts according to a compression technique, wherein one of the image parts is the base image data and the other image part is the auxiliary image data, and the base image data and the auxiliary image data respectively comprise a part of image contents comprising pixel values of the original

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image (see at least, Zhu, abstract and section 4 “Experimental Results”); and encrypting the auxiliary image data to an auxiliary image data cipher (see at least, Inomata, [0033]-[0034]).

The examiner notes that Zhu discloses that an image is split into a host image and a residual image (see at least, abstract) further notes an image is composed of pixels and further interprets that host image and residual image are the division of pixels based on the host image (see at least, section 4 “Experimental Results”: the examiner notes this is the respective parts that comprise an image and its pixel values). Further Zhu disclose that the host image which is compressed, and residual image, which is compressed into a bit stream, is embedded into the compressed host image (see at least, Introduction). The examiner notes under the broadest reasonable interpretation the division of an image into a host and residual image to obtain a compressed image is a compression technique to obtain the compressed image.

The examiner notes Inomata discloses encrypting the auxiliary image data to an auxiliary image data cipher (see at least, [0033]-[0034]: the examiner notes encryption is carried on out the code table representing the quantization values of the image). The examiner notes that the table represents the image data cipher is and encrypted and decrypted from the image data in which later can be used to obtain the actual image (see at least, [0025] and [0033]-[0034]). The examiner notes under the broadest reasonable interpretation a code table represents an auxiliary image cipher and is encrypted based on the image data.

Further the examiner notes the combination of Zhu and Inomata does indeed disclose the claimed invention and further motivation was provided from Inomata: "to avoid the risk of image data disclosure due to interception on the internet or as a result of being viewed by unauthorized persons (see at least, Inomata, [0005])." Further the examiner notes both Zhu and Inomata disclose elements known to one of ordinary skill in art and further one of ordinary skill in the art would have had the knowledge to create a predictable result. Therefore, the examiner notes the argument of Zhu and Inomata for failing to teach or suggest the claimed invention is not persuasive.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 8-10, 11-13 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu et al. "Image Coding By Folding" in view of Inomata et al. (US 2004/0120517 A1).

#### Claims 1 and 11

Zhu discloses comprising: a first image device; comprising: a compression unit to divide an original image into two image parts according to a compression technique (see at least, abstract: the examiner notes a coding/compression algorithm) wherein a first

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image part of the image parts is base image data and a second image part of the image part is auxiliary image data image (see at least, abstract: the examiner notes an image is split into a host image and a residual image), and the base image data and the base image data and the auxiliary image data respectively comprise a part of image contents comprising pixel values of the original image (see at least, section 4 "Experimental Results": the examiner notes the image size in pixels) and compress the base image data to compressed base image data according to the compression technique (see at least, abstract: the examiner notes the use of a standard compression technique to compress the host); and an image composing unit coupled to the compression unit to receive and compose the compressed base image data and the auxiliary image data bit stream into a image corresponding to the original image (see at least, introduction: the examiner notes the host image, which is compressed, and residual image, which is compressed into a bit stream, is embedded into the host image).

Zhu fails to disclose an image protection system comprising an encryption unit coupled to the compression unit to receive and encrypt the auxiliary image data to an auxiliary image data cipher; and an image composing unit that combines the image parts to compose a plaintext for the first image part and cipher for the second image part are in the protected image.

However, Inomata discloses an image protection system (see at least, abstract) comprising an image divider that divides an image into two parts (see at least, [0025]: the examiner notes an image divider to divide the original data) into an image to be compressed (see at least, [0025]) and using an encryption unit coupled to the image

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divider (see at least, FIG. 1) to receive and encrypt the auxiliary image data to an auxiliary image data cipher (see at least, [0033]-[0034]: the examiner notes encrypt is carried on out the code table representing the quantization values of the image) and an image composing unit that combines the image parts to compose a plaintext for the first image part and cipher for the second image part are in the protected image (see at least, [0035]: the examiner notes the multiplexer joins compressed data output and the encrypted data) .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu's compression image device that divides an original image to include an image protection system, comprising an image divider that divides an image into two parts into an image to be compressed and using an encryption unit coupled to the image divider to receive and encrypt the auxiliary image data to an auxiliary image data cipher and an image composing unit that combines the image parts to compose a plaintext for the first image part and cipher for the second image part are in the protected image as taught by Inomata to add the functionality of image protection and encryption. One of ordinary skill in the art would have been motivated to combine the teachings in order to avoid the risk of image data disclosure due to interception on the internet or as a result of being viewed by unauthorized persons (see at least, Inomata, [0005]).

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Claims 2 and 12

Zhu fails to disclose further comprising: a second image device, comprising: an image decomposition unit to receive and decompose the protected image into the compressed base image data and the auxiliary image data cipher; a decryption unit coupled to the image decomposition unit to receive and decrypt the auxiliary image data cipher to the auxiliary image data using a decryption key; and a decompression unit coupled to the image decomposition unit and the decryption unit to receive the compressed base image data and the auxiliary image data, decompress the compressed base image data to the base image data, and combine the base image data and the auxiliary image data to recover the original image according to the compression technique.

However, Inomata discloses further comprising a second image device, comprising (see at least, [0041]: the examiner notes a decompression/decryption device): an image decomposition unit to receive and decompose the protected image into the compressed base image data and the auxiliary image data cipher (see at least, [0041]: the examiner notes a demultiplexer separates input multiplexed data in order to interpret and decode the result into an image (e.g. [0045])); a decryption unit coupled to the image decomposition unit to receive and decrypt the auxiliary image data cipher to the auxiliary image data using a decryption key (see at least, [0042]: the examiner notes a decryptor decodes extracted encrypted data and restores the correct quantization table); and a decompression unit coupled to the image decomposition unit and the decryption unit to receive the compressed base image data and the auxiliary image data (see at least, [0041]-[0045]), decompress the compressed base image data to the base



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image data (see at least, [0043]: the examiner notes an entropy decoder decodes the compressed data one at a time), and combine the base image data and the auxiliary image data to recover the original image according to the compression technique (see at least, [0045]: the examiner notes an image reconstructor reproduces the original image from the decompression/decryption process).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu to include a second image device, comprising: an image decomposition unit to receive and decompose the protected image into the compressed base image data and the auxiliary image data cipher; a decryption unit coupled to the image decomposition unit to receive and decrypt the auxiliary image data cipher to the auxiliary image data using a decryption key; and a decompression unit coupled to the image decomposition unit and the decryption unit to receive the compressed base image data and the auxiliary image data, decompress the compressed base image data to the base image data, and combine the base image data and the auxiliary image data to recover the original image according to the compression technique as taught by Inomata. One of ordinary skill in the art would have been motivated to combine the teachings in order to avoid the risk of image data disclosure due to interception on the internet or as a result of being viewed by unauthorized persons (see at least, Inomata, [0005]).

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Claims 3 and 13

Zhu fails to disclose wherein the first image device further comprises a transformation unit to perform discrete wavelet transformation on the original image in advance.

However, Inomata discloses wherein the first image device further comprises a transformation unit to perform discrete wavelet transformation on the original image in advance (see at least, [0025]: the examiner notes the use DCT (discrete cosine transformation) and wavelet transformation as an orthogonal transformation process).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu to include wherein the first image device further comprises a transformation unit to perform discrete wavelet transformation on the original image in advance as taught by Inomata. One of ordinary skill in the art would have been motivated to combine the teachings in order to avoid the risk of image data disclosure due to interception on the internet or as a result of being viewed by unauthorized persons (see at least, Inomata, [0005]).

Claims 8 and 18

Zhu discloses wherein the compression technique is resolution compression (see at least, introduction: the examiner notes the host image is 50% of the size of the original).

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Claims 9 and 19

Zhu discloses wherein the compression technique is quality compression (see at least, introduction: the examiner notes the host image is 50% of the size of the original and still have perfect reconstruction) .

Claims 10 and 20

Zhu discloses wherein the compression unit further compresses the auxiliary image data (see at least, abstract: the examiner notes the residual image in compressed into a bit stream).

Claims 4-7 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu et al. "Image Coding By Folding" in view of Inomata et al. (US 2004/0120517 A1).as applied to claim 1 and 3 above, and further in view of Fukushima (US 6,917,382 B1).

Claims 4 and 14

Zhu in view of Inomata fails to disclose wherein the second image device further comprises an anti-transformation unit to perform anti-discrete wavelet transformation on the original image after the original image is combined.

However, Fukushima discloses wherein the second image device further comprises an anti-transformation unit to perform anti-discrete wavelet transformation on

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the original image after the original image is combined (see at least, col. 10, lines 20-39: the examiner notes an inverse discrete wavelet transformation).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu in view of Inomata to include wherein the second image device further comprises an anti-transformation unit to perform anti-discrete wavelet transformation on the original image after the original image is combined as taught by Fukushima. One of ordinary skill in the art would have been motivated to combine the teachings in order to automatically set an appropriate region of an image in order to perform coding (see at least, Fukushima, see at least, col. 1, lines 57-62).

#### Claims 5 and 15

Zhu in view of Inomata fails to disclose wherein the first image device further comprises a quantization unit to quantize each coefficient of the original image after the discrete wavelet transformation.

However, Fukushima discloses wherein the first image device further comprises a quantization unit to quantize each coefficient of the original image after the discrete wavelet transformation (see at least, col. 8, lines 24-27: the examiner notes a quantization step that quantizes each coefficient and col. 10, lines 20-39: the examiner notes an inverse discrete wavelet transformation).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu in view of Inomata to include

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wherein the first image device further comprises a quantization unit to quantize each coefficient of the original image after the discrete wavelet transformation as taught by Fukushima. One of ordinary skill in the art would have been motivated to combine the teachings in order to automatically set an appropriate region of an image in order to perform coding (see at least, Fukushima, see at least, col. 1, lines 57-62).

#### Claims 6 and 16

Zhu in view of Inomata fails wherein the second image device further comprises an anti-quantization unit to anti-quantize each coefficient of the original image before the anti-discrete wavelet transformation.

However, Fukushima wherein the second image device further comprises an anti-quantization unit to anti-quantize each coefficient of the original image before the anti-discrete wavelet transformation (see at least, col. 9, lines 49-57: the examiner notes an inverse quantization unit and col. 10, lines 20-39: the examiner notes an inverse discrete wavelet transformation).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu in view of Inomata to include wherein the second image device further comprises an anti-quantization unit to anti-quantize each coefficient of the original image before the anti-discrete wavelet transformation as taught by Fukushima. One of ordinary skill in the art would have been motivated to combine the teachings in order to automatically set an appropriate region

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of an image in order to perform coding (see at least, Fukushima, see at least, col. 1, lines 57-62).

Claims 7 and 17

Zhu in view of Inomata fails to disclose wherein the compression technique is region of interest (ROI) compression.

However, Fukushima discloses wherein the compression technique is region of interest (ROI) compression (see at least, abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu in view of Inomata to include wherein the compression technique is region of interest (ROI) compression as taught by Fukushima. One of ordinary skill in the art would have been motivated to combine the teachings in order to automatically set an appropriate region of an image in order to perform coding (see at least, Fukushima, see at least, col. 1, lines 57-62).

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARI L. SCHMIDT whose telephone number is (571) 270-1385. The examiner can normally be reached on Monday - Friday: 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kambiz Zand can be reached on 571-272-3811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kari L Schmidt/  
Examiner, Art Unit 2439

/Kambiz Zand/

Supervisory Patent Examiner, Art Unit 2434